



復旦大學
FUDAN UNIVERSITY

Applied Math Ph.D. Seminar

Accelerated Gradient Descent by Concatenation of Stepsize Schedules

Speaker: Zehao Zhang (Fudan University)

Time: 2026-09-10, 16:10 to 17:00

Location: Rm 1801, Guanghai East Tower

Advisor: Rujun Jiang (Fudan University)

Abstract: This work considers stepsize schedules for gradient descent on smooth convex objectives. We extend the existing literature and propose a unified technique for constructing stepsizes with analytic bounds for an arbitrary number of iterations. This technique constructs new stepsize schedules by concatenating two stepsize schedules with fewer steps. Using this approach, we introduce two new families of stepsize schedules, achieving a convergence rate of $O(n^{-\log_2(\sqrt{2}+1)})$ with state-of-the-art constants for the objective value and gradient norm of the last iterate, respectively. Furthermore, our analytically derived stepsize schedules either match or surpass the existing best numerically computed stepsize schedules.